REMARKS

Favorable consideration and allowance of the claims of the present application are respectfully requested.

Before addressing the specific grounds of rejection, applicants have amended Claim 1 to more clearly and positively recite applicants' claimed precursor source mixture. More specifically, applicants have amended Claim 1 to recite that the *precursor compound is not* $(C_6H_8)Ru(CO)_3$.

Claims 1, 2, 14-22, 24-26, 28-32 and 39-40 stand rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 6,541,067 to Marsh, et al. ("Marsh, et al."). Claims 41-54 and 56 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Marsh, et al. in view of U.S. Patent. No. 6,225,237 to Vaartstra ("Vaartstra")[1]. Claims 27 and 33-38 stand rejected under 35 U.S.C. §103(a) as allegedly obvious over the combination of Marsh, et al. and U.S. Patent. No. 5,879,459 to Gadgil, et al. ("Gadgil, et al")[1]. Claim 55 stands rejected under 35 U.S.C. §103(a) as allegedly obvious over the combination of Marsh, et al., Vaartstra and U.S. Patent. No. 5,688,028 to Bryant, et al. ("Bryant, et al"). Applicants respectfully traverse the above grounds of rejection and submit the following.

Turning to the rejection under 35 U.S.C. §102, it is axiomatic that anticipation under §102 requires the prior art reference to disclose every element to which it is applied. *In re King,* 801 F.2d 1324, 1326, 231 USPQ 36, 138 (Fed Cir, 1986). Thus, there must be no differences between the subject matter of the claim and the disclosure of the prior art reference. Stated another way, the reference must contain within its four corners adequate direction to practice the invention as claimed. The corollary of the rule is equally applicable: absence from the applied reference of any claimed element negates anticipation. *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1571, 230 USPQ 81, 84 (Fed. Cir. 1986). Applicants respectfully submit that Marsh, et al. fail to anticipate applicants' precursor compound, as recited in amended Claim 1.

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1 Applicants observe that in the Office Action it appears that the Examiner meant to cite Marsh, et al. as the principal reference. Hence, Applicants remarks include Marsh, et al. in the §103 rejections citing Vaarstra and Gadgil, et al.

Marsh, et al. fail to dislcose each and every element of applicants' claimed precursor source mixture utilized for chemical vapor deposition or atomic layer deposition. Specifically, Marsh, et al. fail to teach a precursor source mixture utilized for chemical vapor deposition or atomic layer deposition comprising at least one precursor compound which is dissolved, emulsified or suspended in an inert organic liquid, where the precursor compound is a precursor metal atom bound to a ligand selected from the group consisting of hydride, carbonyl, imido, hydrazido, phosphido, nitrosyl, nitryl, nitrate, nitrile, halide, azide, siloxy, and silyl, with the proviso that *the precursor compound is not* $(C_6H_8)Ru(CO)_3$, as recited in amended Claim 1. Marsh, et al. disclose a method directed to forming a film of ruthenium or ruthenium oxide to the surface of a substrate by employing the techniques of chemical vapor deposition to decompose ruthenium precursor formulations. Referring to Column 7, lines 10-65, the precursor disclosed in Marsh, et al. comprises $(C_6H_8)Ru(CO)_3$ prepared by mixing 10 grams of $Ru_3(CO)_{12}$ with 30 mls of benzene and 13.5 ml of 1,3-cycolohexadiene. Applicants have amended Claim 1 to include the proviso that *the precursor compound is not* $(C_6H_8)Ru(CO)_3$. Therefore, Marsh, et al. fail to teach each and every element of applicants' claimed precursor source mixture, as recited in amended Claim 1.

The forgoing remarks clearly demonstrate that Marsh, et al. do not teach each and every aspect of the claimed invention as required by *King* and *Kloster Speedsteel; et al.*, therefore the claims of the present application are not anticipated by the disclosure of Marsh, et al. In view of the above amendments and remarks, the 35 U.S.C. §102 (e) rejection to Claims 1, 2, 14-22, 24-26, 28-32 and 39-40 citing Marsh, et al. has been obviated and withdrawal thereof is respectfully requested.

Turning to the rejection of Claims 41-54 and 56 under 35 U.S.C. §103(a), applicants submit that the combination of Marsh, et al. and Vaartstra does not render applicants' structure obvious, since the applied prior art fails to teach or suggest each and every limitation of applicants' claimed structure, as recited in amended Claim 1. "To establish a prima facie case of obviousness of a claimed invention all the claimed limitations must be taught or suggested by the prior art". *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 44, 496 (CCPA 1970).

Applicants submit that Marsh, et al. fail to render applicants' claimed invention, as recited in Claims 41-54 and 56, unpatentable, under 35 U.S.C. §103(a), for the same reason that

Marsh, et al. fail to anticipate applicants' claimed invention, as recited in Claims 1, 2, 14-22, 24-26, 28-32 and 39-40, under 35 U.S.C. §102(e). If an independent claim is non-obvious under 35 U.S.C. §103(a), then any claim depending therefrom is non-obvious. *In re Fine,* 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, applicants respectfully submit that the above remarks, concerning the deficiencies of Marsh, et al. to anticipate applicants' claimed invention, under 35 U.S.C. §102(e), apply equally well to the obviousness rejection of Claims 41-54, and 56. To reiterate, Marsh, et al. fail to teach or suggest a precursor source mixture utilized for chemical vapor deposition or atomic layer deposition comprising at least one precursor compound which is dissolved, emulsified or suspended in an inert organic liquid, where the precursor compound is a precursor metal atom bound to a ligand selected from the group consisting of hydride, carbonyl, imido, hydrazido, phosphido, nitrosyl, nitryl, nitrate, nitrile, halide, azide, siloxy, and silyl, with the proviso that the precursor is not $(C_6H_8)Ru(CO)_3$, as recited in amended Claim 1.

Vaartstra does not alleviate the deficiencies in the primary reference, Marsh, et al., since the applied secondary reference also fails to teach or suggest applicants' claimed precursor source mixture including applicants' claimed precursor compound, as recited in amended Claim 1. Applicants observe that Vaartstra is relied upon for disclosing known semiconducting structures, such as capacitors, field effect transistors and wiring structures and submit that Vaartstra is far removed from applicants' claimed precursor compositions.

Vaartstra discloses a method of forming a film on a substrate using one or more complexes containing one or more chelating O- and/or N-donor ligands. More specifically, Vaartstra discloses a method of forming a film on a substrate using one or more complexes containing RC(O)NC(O)CR diacetamido, RC(NH)NC(NH)CR imidoylamidinato, or RC(O)NC(N)CR ligands. Claim 1 has been amended to exclude precursors bound to RC(O)NC(O)CR diacetamido, RC(NH)NC(NH)CR imidoylamidinato, or RC(O)NC(N)CR ligands, wherein R is a hydrocarbon. Therefore, since Vaartstra does not disclose one of applicants' claimed precursor compounds, Vaartstra fails to teach each and every element of applicants' claimed precursor source mixture, as recited in amended Claim 1. In view of the above amendments and remarks, the rejection to Claims 41-54, and 56 citing the combination of Marsh, et al. and Vaartstra has been obviated.

Turning to the 35 U.S.C. §103(a) rejection of Claims 27, and 33-38 citing the combination of Marsh, et al., and Gadgil, et al., applicants' respectfully submit that the combination of the applied prior art fails to render applicants' invention unpatentable, since the applied combination fails to teach or suggest each and every element of applicants' claimed precursor source mixture, as recited in amended Claim 1. As discussed above, Marsh, et al. fail to teach or suggest on of applicants' claimed precursor compounds. Gadgil, et al. do not alleviate the defects in Marsh, et al., since Gadgil, et al. also fail to teach or suggest applicants' claimed precursor compounds. Gadgil, et al. disclose a low profile, compact atomic layer deposition reactor having a low profile body with a substrate processing region adapted to serve a single substrate or a planar array of substrates, and a valved load and unload port for substrate loading and unloading. Applicants submit that Gadgil, et al. are far removed from applicants' claimed invention and find no motivation in Gadgil, et al. that would lead one to replace elements of the prior art with one of the presently claimed precursor compounds. In view of the above amendments and remarks, the rejection to Claims 27 and 33-38 under 35 U.S.C. §103(a) citing the combined disclosures of Marsh, et al., and Gadgil, et al. has been obviated. Therefore, applicants respectfully request that the 35 U.S.C. §103(a) rejection of Claims 27 and 33-38 be withdrawn.

Turning to the rejection of Claim 55 under 35 U.S.C. 103(a) over the combination of Vaartstra, Marsh, et al., and Bryant, et al., applicants respectfully submit that Bryant, et al. also fail to teach or suggest one of applicants' claimed precursor compositions, as recited in amended Claim 1. Bryant, et al. disclose a gate structure in a transistor and a method for fabricating the gate structure in a transistor. Bryant, et al. do not teach or suggest one of applicants' claimed precursor compounds, as recited in amended Claim 1. Applicants respectfully submit that in light of the above remarks and amendments the present rejection has been obviated. Therefore, applicants respectfully request that the rejection of Claim 55 under 35 U.S. C. §103(a) be withdrawn.

The §103 rejections also fail because there is no motivation in the applied references, which suggests modifying the metal precursor compounds to include applicants' claimed precursor composition. This rejection is thus improper since the prior art does not suggest this

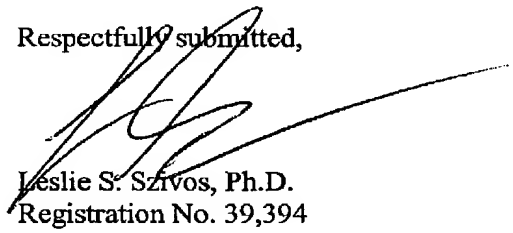
drastic modification. The law requires that a prior art reference provide some teaching, suggestion, or motivation to make the modification obvious.

Here, there is no motivation provided in the disclosures of the applied prior art reference, or otherwise of record, which would lead one skilled in the art to make the modification mentioned hereinabove. "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 972 F.2d, 1260,1266, 23 USPQ 1780,1783-84 (Fed. Cir. 1992).

There is no suggestion in the prior art of applicants' claimed metal precursor compound as recited in amended Claim 1, therefore all the claims of the present application are not obvious from the prior art applied in the present Office Action. Based on the above amendments and remarks, each of the §103 rejection has been obviated; therefore reconsideration and withdrawal of the instant §103 rejections are respectfully requested.

Wherefore, reconsideration and allowance of the claims of the present application, as amended, is respectfully requested.

Respectfully submitted,



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